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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/519,579

06/13/2005

Walter Trakowski

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EXAMINER

WALTERS JR, ROBERT S

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

08/20/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/519,579	Applicant(s) TRAKOWSKI ET AL.	
	Examiner ROBERT S. WALTERS JR	Art Unit 4172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/28/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Application

Claims 1-5 are pending and presented for examination.

Specification

Abstract

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

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- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are drawn to a gas or gas mixture with a density of less than 2 kg/m³, however density is a function of temperature and pressure and the claims and specification fail to provide a reference value for determining at what temperature and pressures the gases are to be measured at. Therefore, the breadth of the claim can not be ascertained and they are therefore indefinite. Appropriate correction is required. For examination purposes, the density of the gas

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or mixture has been construed to be measured at approximately standard temperature and pressure.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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2. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masaaki (JP 11-279730) in view of Pedley (GB 2050432).

Regarding claims 1 and 3, Masaaki teaches a method of suppressing the evaporation of zinc in hot dip coating of a steel strip with zinc, wherein the metal strip is guided through a furnace snout immersed in the metal bath and guided around a deflecting roller in the metal bath and then emerges from the metal bath at the top (abstract and Figure). Masaaki further teaches having a gas present in the furnace snout above the metal bath that will serve as an isolating gas (abstract). Masaaki teaches that the gas acts to sit on the surface of the metal bath and does not diffuse backwards or only diffuses backwards slightly, therefore the gases disclosed by Masaaki are capable of reducing or eliminating turbulence of the gas or gas mixture above the surface of the metal bath (machine translation, 0007). Masaaki fails to explicitly teach using an isolating gas with a poor thermal conductivity, a density of less than 2 kg/m^3 , or the case where the isolating gas is argon.

Pedley teaches the use of argon (pg 1, column 2, lines 86-92) as a gas to sit upon the surface of a molten metal bath which may be zinc to protect the surface of the molten metal that is to be used in the galvanizing of steel products (pg 1, column 2, lines 84-95). First, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a gas with a poor thermal conductivity as this would necessarily allow for maintaining the area above the molten zinc as cool as possible to suppress evaporation. Further, it would have been obvious to one of ordinary skill in the art at the time of the invention that argon, being heavier than air and nitrogen, would be expected to be able to act to reduce or eliminate turbulence above the surface

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of the metal bath. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Masaaki's method by using argon, a gas with poor thermal conductivity and a density of less than 2 kg/m^3 as the isolating gas, as disclosed by Pedley. One would have been motivated to make this modification as one of ordinary skill in the art at the time of the invention could have substituted argon as the gas in place of those disclosed by Masaaki with a reasonable expectation of success and a predictable result of providing a isolating gas to suppress evaporation of zinc above the metal bath.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masaaki in view of Pedley as applied to claim 1 above, and further in view of Boston et al. (U.S. Pat. No. 4557953).

Regarding claim 2, Masaaki in view of Pedley teach all the limitations of claim 1 above, however fails to disclose having a hydrogen/nitrogen atmosphere above the layer of isolating gas. Boston teaches the use of a hydrogen/nitrogen atmosphere in the snout of a similar zinc hot dip apparatus to suppress the evaporation of zinc (column 3, lines 37-40 and Figure 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Masaaki in view of Pedley's method by utilizing a hydrogen/nitrogen atmosphere above the layer of isolating gas. One would have been motivated to make this modification as Boston teaches that the hydrogen/nitrogen atmosphere provides a reducing atmosphere in the snout and therefore serves to prevent the oxidation of the metal strip (column 4, lines 5-6) prior to being coated with the zinc.

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4. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masaaki in view of Pedley as applied to claim 1 above, and further in view of Sander et al. (U.S. Pat. No. 4228200).

Regarding claims 4 and 5, Masaaki in view of Pedley teach all the limitations of claim 1, however fail to disclose the use of the claimed gases as the isolating gases. Sander teaches a method for controlling the metal coating of strips (abstract) in a metal bath, which may be a zinc bath (column 6, lines 24-27). Sander teaches the use of an atmosphere adjacent to the surface of the metal bath introduced across the width of the bath which is non-oxidizing and unreactive with the molten metal, which may be butane or propane (column 8, lines 29-38). Sander teaches that this metal bath serves to maintain the bath surface in a substantially clean condition (column 8, lines 52-56). Further, both propane and butane are heavier gases than air and have poor thermal conductivities and one of ordinary skill in the art at the time of the invention would have expected these gases to sit upon the molten metal bath and provide an area of reduced turbulence. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Masaaki in view of Pedley's method to use butane or propane or a mixture of butane and propane with the argon as the isolating gas in Masaaki in view of Pedley's method. One would have been motivated to make this modification as one of ordinary skill in the art at the time of the invention could have made the substitution of propane or butane or a mixture of those gases with argon for the argon in Masaaki in view of Pedley's method with a reasonable expectation of success and a predictable result of providing an isolating gas above the molten zinc. It should be noted that with regard to claim 4 that any of the claimed gases, which

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alone have a density of greater than 2 kg/m^3 , are construed to be mixtures with argon or lower density gases such that the overall density of the gas mixture is less than 2 kg/m^3 .

Pertinent Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Stavros et al. (U.S. Pat. No. 4339480)

Conclusion

Claims 1-5 are pending.

Claims 1-5 are rejected.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT S. WALTERS JR whose telephone number is (571)270-5351. The examiner can normally be reached on Monday-Thursday, 6:30am to 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571)272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ROBERT S. WALTERS JR/
August 12, 2008
Examiner, Art Unit 1792

/Brian K Talbot/
Primary Examiner, Art Unit 1792